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PCT/KR2004/002673

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Artcle 36 and Rule 70)

Applicant's or agent's file reference PP-E0058	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. **PCT/KR2004/002673**	International filing date *(day/month/year)* **19 OCTOBER 2004 (19.10.2004)**	Priority date *(day/month/year)* 24 OCTOBER 2003 (24.10.2003)

International Patent Classification (IPC) or national classification and IPC

H04B 1/40(2006.01)i

Applicant

KJ HEALTH CARE CO., LTD. et al

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ (sent to the applicant and to the International Bureau) a total of 5 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demamd	Date of completion of this report
12 AUGUST 2005 (12.08.2005)	27 FEBRUARY 2006 (27.02.2006)
Name and mailing address of the IPEA/KR Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer KIM, Dong Sung Telephone No. 82-42-481-5949

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/KR2004/002673

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1(b))
☐ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this reort as "originally filed" and are not annexed to this report):*

☐ the international application as originally filed/furnished

☒ the description:
pages 1-21 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☒ the claims:
pages _____ as originally filed/furnished
pages* _____ as amended (together with any statment) under Article 19
pages* 22-26 received by this Authority on 23.01.2006
pages* _____ received by this Authority on _____

☒ the drawings:
pages 1/3-3/3 as originally filed/furnished
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____

☐ the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☒ the claims, Nos. 4-5, 7, 11
☐ the drawings, sheets _____
☐ the sequence listing *(specify)* : _____
☐ any table(s) related to sequence listing *(specify)* : _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets _____
☐ the sequence listing *(specify)*: _____
☐ any table(s) related to sequence listing *(specify)* : _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-3, 6, 8-10, 12	YES
	Claims		NO
Inventive step (IS)	Claims	1-3, 6, 8-10, 12	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-3, 6, 8-10, 12	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:
D1 : JP 15-57244 A (NIPRO CORP) 26 FEBRUARY 2003
D2 : KR 2002-0032508 A(COSMOGENOME INC) 03 MAY 2002

1. Novelty and Inventive Step(PCT Article 33(2)-(3))

D1 discloses a recording medium capable of measuring blood sugar and a system for utilizing the recording medium mounted on a portable terminal device as a blood sugar measuring device,which connects the portable terminal device and a server for managing blood sugar information received from the portable terminal device to a network to provide a bidirectional service between them.

D2 discloses a patch type infusion pump adjustable at a remote distance by using a wireless communication method which is provided to achieve an ultra light pump by eliminating the installation of manipulating switches or display elements, and to enable a user to monitor and deal with the abnormal condition of the pump at the remote distance via a network.

Claims 1-3, 6, 8-10, 12 of the present invention relate to an insulin pump for use in conjunction with a mobile communication terminal capable of measuring blood glucose levels, and a network system for transmitting control information for the insulin pump, in which information on measured blood glucose levels is provided to a medical server through the mobile communication terminal, information on the amounts of insulin is received from the medical server, and the insulin pump is controlled based on the information on the amounts of insulin to be injected. As a result, this invention not only improves the convenience of use of the insulin pump but also performes the supply of precise amounts of insulin.

- To be continued on the supplemental box -

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

However, no prior art including the cited documents discloses the subject matter of claim 1-3, 6, 8-10, 12 which comprises the technical components of : an external input port connected to the mobile communication terminal capable of measuring blood glucose levels and an output port for outputting information on amounts of insulin injected to a user; a control unit for accumulating the information on the measured information and displaying the accumulated information on the LCD panel in graphic form with respect to a predetermined period; a DB for storing information on amount of insulin injected and amount of food eaten and amount of exercise taken by a user; a blood glucose management server for receiving the information on the measured blood glucose levels and an amount of food eaten and an amount of exercise taken; and a communication server for converting the information on the amounts of insulin to be injected into coded information and transmitting the coded information to the mobile communication terminal.

Therefore claims 1-3, 6, 8-10, 12 of the present invention meet the criteria set out in PCT Article 33(2)-(3).

2) Industrial Applicability (PCT Article 33(4))

Claims 1-3, 6, 8-10, 12 of the present invention meet the criteria set out in PCT Article 33(4) because the subject matter of said claims is industrially applicable.

Claims

1. **(Amended)** An insulin pump for use in conjunction with a mobile communication terminal capable of measuring a blood glucose level, comprising:

an external input port connected to the mobile communication terminal, which is capable of measuring a blood glucose level and transmitting information on the measured blood glucose level to a glucose management server, to receive information on amounts of insulin to be injected, which corresponds to the information on measured glucose levels, from the mobile communication terminal;

an output port for outputting information on amounts of insulin actually injected to a user;

memory for storing the information on the amounts of insulin actually injected;

a key input unit for inputting status before and after each meal and before retiring in electrical signal form;

a control unit for extracting the information on the amounts of insulin to be injected from the memory in response to a key signal of the key input unit, and generating control code according to the information on the amounts of insulin to be injected; and

a motor drive for operating a soft motor to supply insulin in response to the control code;

wherein the control unit is operated in conjunction

with a Liquid Crystal Display (LCD) panel for accumulating the information on the amounts of insulin injected for a predetermined period and displaying the accumulated information on the amounts of insulin injected in graphic form, and a driver for operating the LCD panel, and accumulates the information on the measured blood glucose levels for a predetermined period, and displays the accumulated information on the measured blood glucose levels on the LCD panel with respect to a plurality of time bands and dates; and

wherein the key input unit includes an automatic setting mode for automatically injecting insulin and a time input mode for setting time when insulin is to be injected, and, when the automatic setting mode is selected, the control unit controls the motor driver based on time information that is input from an internal timer and the set time when insulin is to be injected.

2. The insulin pump according to claim 1, wherein the external input port and the output port are Universal Serial Bus (USB) ports.

3. The insulin pump according to claim 1, wherein the external input port is an infrared port.

4. (Delete)

5. (Delete)

6. The insulin pump according to claim 1, wherein the mobile communication terminal provides information on an amount of food eaten by the user to the blood glucose management server in coded signal form, and the information on the amounts of insulin injected is processed according to the information on the amount of food eaten.

7. (Delete)

8. (Amended) A network system for transmitting control information for an insulin pump for use in conjunction with a mobile communication terminal capable of measuring a blood glucose level, comprising:

a DB for storing information on amounts of insulin injected that corresponds to information on measured blood glucose levels, an amount of food eaten and an amount of exercise taken;

a blood glucose management server for receiving the information on the blood glucose levels that are measured by the mobile communication terminal, and the information on the amount of food eaten and the amount of exercise taken that is input via the mobile communication terminal, extracting information on amounts of insulin to be injected that corresponds to the information on the measured blood

glucose levels, the amount of food eaten and the amount of exercise taken and generating transmitter information of the mobile communication terminal; and

a communication server for converting the information on the amounts of insulin to be injected into coded information on the amounts of insulin to be injected, and transmitting the coded information on the amounts of insulin to be injected to the mobile communication terminal that corresponds to the transmitter information; and

wherein the coded information on the amounts of insulin to be injected corresponds to amounts of insulin to be injected before and after breakfast, before and after lunch, before and after dinner and before retiring, and is information on operational control of the insulin pump that corresponds to amounts of insulin to be injected with respect to insulin injection time bands.

9. The network system according to claim 8, wherein the information on the amounts of insulin injected stored in the DB is classified according to clinical histories of diabetes patients, and the blood glucose management server extracts the information on the amounts of insulin to be injected from the DB with respect to each diabetes patient based on the transmitter information of the mobile communication terminal.

10. The network system according to claim 8, wherein

the communication server transmits the coded information on the amounts of insulin to be injected in short message form, in conjunction with a Short Message Service (SMS) system.

11. (Delete)

12. The network system according to claim 8, wherein the mobile communication terminal is one of a mobile phone, a Personal Digital Assistant (PDA) and a Personal Computer (PC) equipped with a wireless modem, which are capable of wirelessly accessing an Internet.